Enabling open publishing

Building open tools with open communities

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Montreal Neurological Institute

Publishing today

You and your colleagues have designed a study, collected data, analyzed the results, and written a paper ! 🎉

Now, you need to:

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- Send the paper to a journal

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- Wait on the reviewers to provide revisions

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- Wait on the reviewers to provide revisions
- Address the revisions and re-submit

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- Address the revisions and re-submit
- Correct the final proof and publish

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- ~~Correct the final proof~~ and publish

The selfish scientist's guide to preprint posting

NKriegeskorte

March 13, 2016

commentary

open science, preprints

Preprint posting is the right thing to do for science and society. It enables us to share our results earlier, speeding up the pace of science. It also enables us to catch errors earlier, minimising the risk of alerting the world to our findings (through a high-impact publication) before the science is solid. Importantly, preprints ensure long-term open access to our results for scientists and for the public. Preprints can be rapidly posted for free on arXiv and bioRxiv, enabling instant open access.

https://nikokriegeskorte.org/2016/03/13/the-selfish-scientists-guide-to-preprint-posting/

Discussing preprints at journal clubs accelerates research

Journal clubs are a staple in academia. They are an opportunity for researchers to sit together and discuss what is new in science. Ironically, because journal clubs typically use published papers, the research is usually already old.

> If you want to be one year behind, don't read bioRxiv

– Jeff Leek

https://elifesciences.org/labs/57d6b284/prereview-a-new-resource-for-the-collaborative-review-of-preprints


Open publishing creates *findable*
and *accessible* science.

https://ogsl.ca/en/fair-principles


What about *interoperable* and *reusable* publishing?

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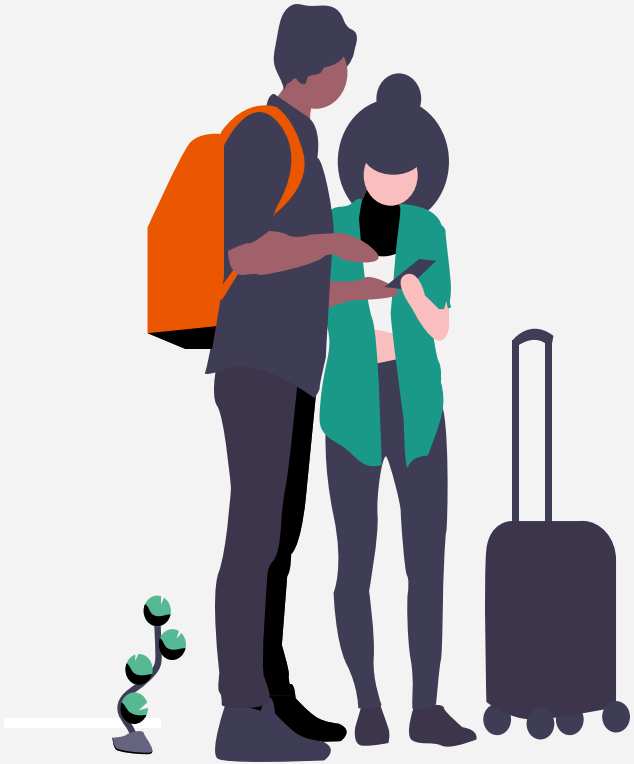
and publish

Olah & Carter (2017). Research Debt. *Distill*.

An article about computational science in a scientific publication is not the scholarship itself, it is ***merely advertising of the scholarship****. The actual scholarship is the complete software development environment and the complete set of instructions which generated the figures.*

Buckhelt and Donoho
(paraphrasing John Claerbout)
WaveLab and Reproducible Research, 1995

with thanks to Chris Holdgraf

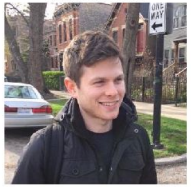


How do we get to FAIR publishing in today's landscape?

A *community* of people and an *ecosystem* of open tools and standards for interactive computing.

with thanks to Chris Holdgraf

andrewosh



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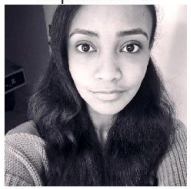

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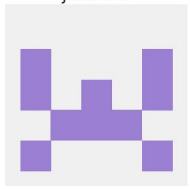

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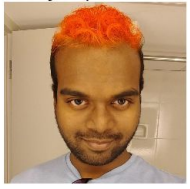
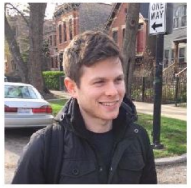


Zsailer

you?

andrewosh



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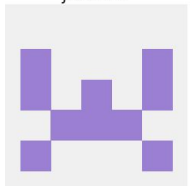

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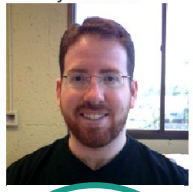

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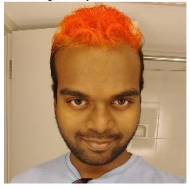


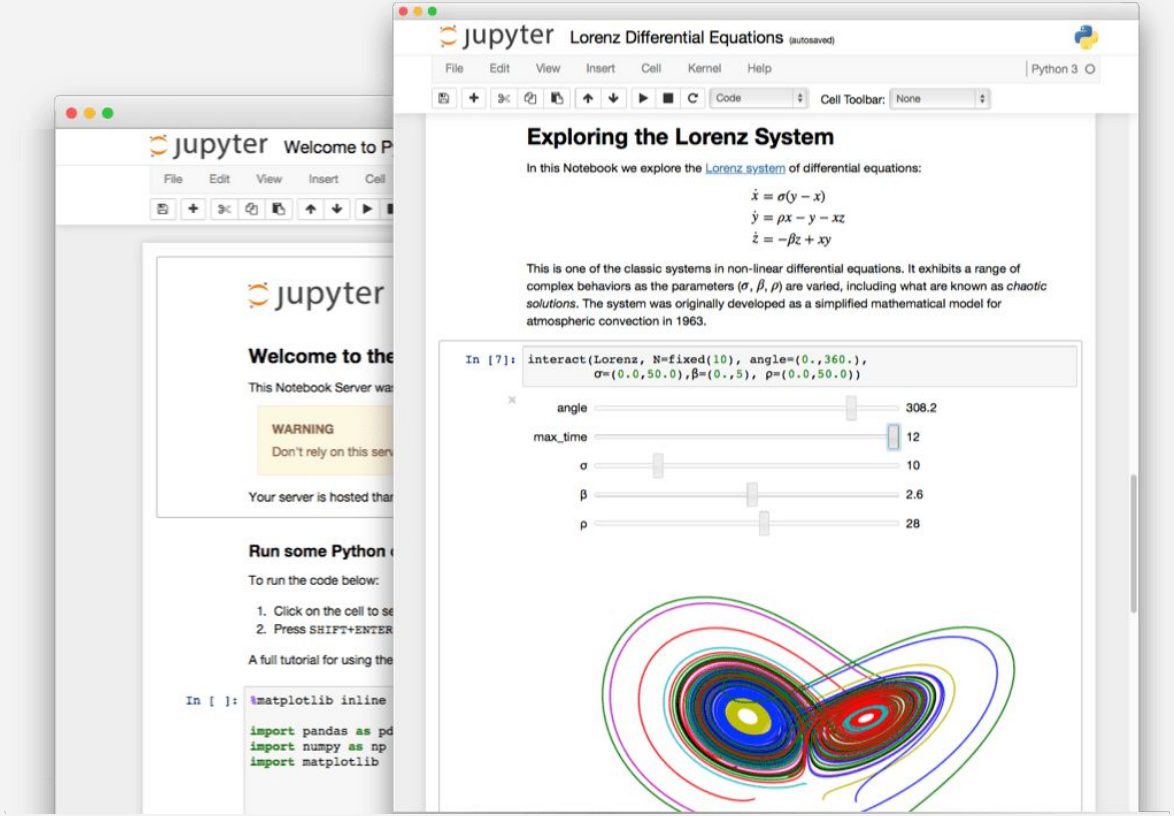
Zsailer

Create things that are ***language-agnostic*** and ***modular***.
Empower people to use ***other open tools***.

with thanks to Chris Holdgraf

What can this kind of community enable?

Jupyter Notebooks



jupyter.org

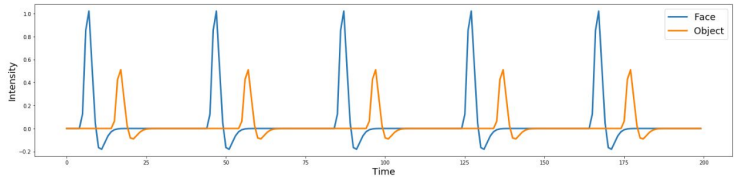
Jupyter Books

Introduction to the General Li

https://dartbrains.org/features/notebooks/9_GLM.html

```
voxel_conv = np.vstack([face_conv, obj_conv]).T

plot_timeseries(voxel_conv, labels=['Face', 'Object'])
```



While this might reflect the expected HRF response to a single event, real data is much noiser. It is easy to add different types of noise. For example, there might be a low frequency drift, autocorrelation, or possibly some aliased physiological artifacts.

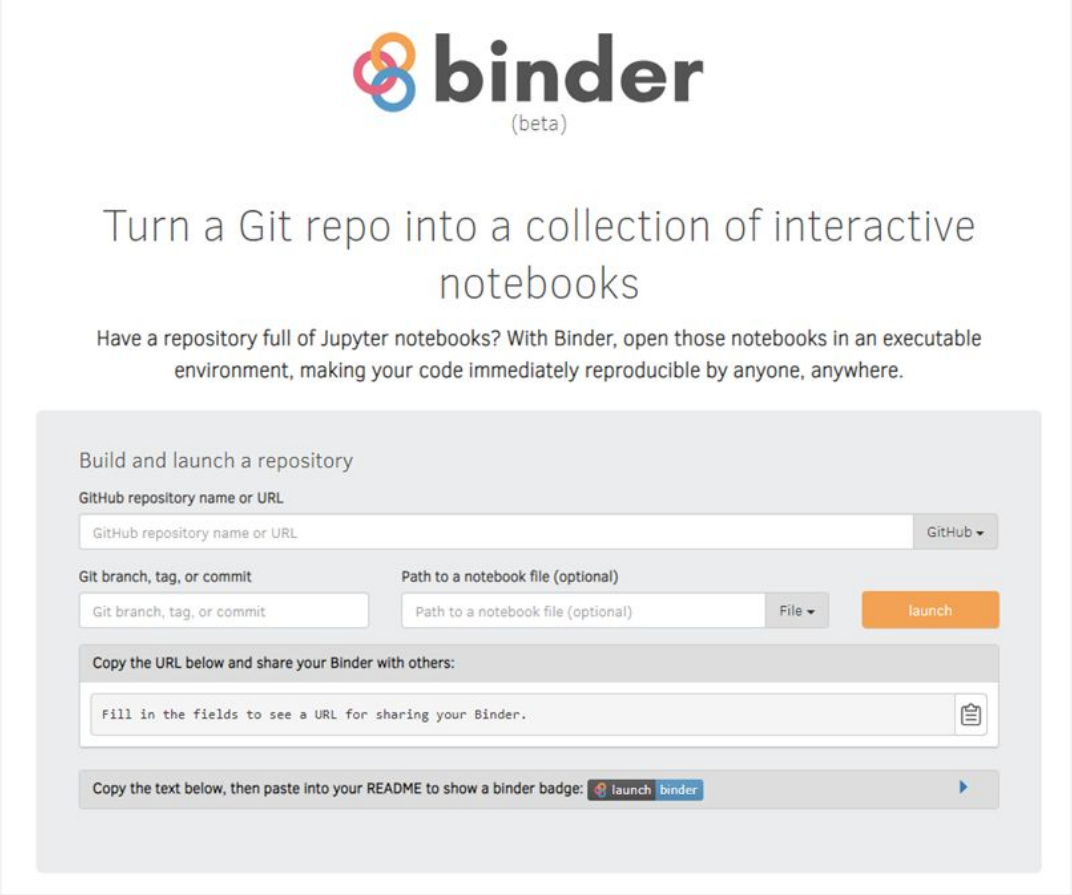
For now, let's start with something simple, like independent white noise drawn from a random Gaussian distribution

$$\epsilon \sim \mathcal{N}(\mu, \sigma^2)$$

where $\mu = 0$ and $\sigma = 0.15$

Luke Chang - dartbrains.org

Binder


binder
(beta)
Turn a Git repo into a collection of interactive notebooks
Have a repository full of Jupyter notebooks? With Binder, open those notebooks in an executable environment, making your code immediately reproducible by anyone, anywhere.
Build and launch a repository
GitHub repository name or URL
GitHub repository name or URL
GitHub
Git branch, tag, or commit
Path to a notebook file (optional)
Git branch, tag, or commit
Path to a notebook file (optional)
File
launch
Copy the URL below and share your Binder with others:
Fill in the fields to see a URL for sharing your Binder.
Copy the text below, then paste into your README to show a binder badge:
launch binder

Neurolibre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Shawn Brown

JB Poline

Samir Das

Pierre Bellec

Nikola Stikov

Neurolibre is a curated repository of interactive neuroscience notebooks, seamlessly integrating data, text, code and figures. Notebooks can be freely modified and re-executed through the web, offering a fully reproducible, “libre” path from data to figures. Neurolibre is powered by the Binder project, with computational resources provided by CONP, CBRAIN and Compute Canada.

neurolibre.github.io/neurolibre-presentation/

Aperture

ohbm-aperture.github.io

Thank you

Jean-Baptiste Poline

Chris Holdgraf

Cameron Craddock
Matteo Visconti Di Oleggio Castello
Eugene Duff
Chris Gorgolewski
Katja Heuer
Greg Kiar
Ana Van Gulick

Camille Maumet
Tim van Mourik
Roberto Toro
Kirstie Whitaker

Pierre Bellec
Mathieu Boudreau
Shawn Brown
Samir Das
Félix-Antoine Fortin
Agah Karakuzu

Darcy Quesnel
Nikola Stikov
Loïc Tetrel

Take Home Ideas

1. Open publishing means more than providing access to a PDF.
2. By creating tools in open communities, we can design modular, sustainable solutions.